NOTES ON BROMELIACEAE, XXXII

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KEY TO GUZMANIA AND SIMULATORS

This revision follows the same plan as that of Tillandsia in my Notes on Bromeliaceae, XXXI, in Phytologia 20: 121. 1970. It completes preliminary revisions of the major genera of the Tillandsioideae for my monograph, Vriesea having appeared in XXIII in Phytologia 13: 84. 1966, and Catopsis in XXVII in Phytologia 16: 64. 1968. Mezobromelia and Glomeropitcairnia with 2 species each are too small to need preliminary treatment, but there is a strong probability that good corolla material will show the necessity of transferring species now in Guzmania to Mezobromelia

Several species of Tillandsia and Vriesea and both of Mezobromelia have the flowers polystichous or in more than 2 ranks and can not be distinguished from Guzmania with certainty without good corollas. They are included in this key on the same basis as that of the simulators in the revision of Tillandsia.

Guzmania has groups of species that at first glance appear to be distinct but there are too many intermediates to permit any satisfactory division into subgenera.

1. Sepals exserted, not wholly covered by the floral or primary bracts.
 2. Sepals high-connate into a slenderly cylindric tube, the free lobes often conspicuously dilated (Sodiroa).
  3. Inflorescence very laxly compound. Peru.....G. dudleyi
  3. Inflorescence simple, lax to dense.
   4. Plants stemless.
    5. Inflorescence elongate, lax.
     6. Leaf-blades ligulate...Colombia.....G. sprucei
     6. Leaf-blades graminiform. Costa Rica to Colombia. G. dissitiflora
    5. Inflorescence globose or subglobose, dense.
     7. Leaf-blades ligulate, usually cross-lined. Panama, Colombia.....G. musaica
     7. Leaf-blades graminiform, concolorous. Colombia, Peru. G. globosa
   4. Plants slenderly long-caulescent; leaf-blades graminiform.
    8. Leaf-sheaths nearly concolorous with the blades.
     9. Sepals not more than 25 mm long; inflorescence 4-8-flowered. Colombia, Ecuador.....G. graminifolia
     9. Sepals 40-55 mm long; inflorescence 10-12-flowered. Colombia.....G. caricifolia
    8. Leaf-sheaths dark castaneous.
     10. Scape exceeding the leaves, less than 1 mm thick; scape-bracts mostly shorter than the internodes; inflorescence slenderly ellipsoid and dense before anthesis, becoming lax. Colombia.....G. kalbreyeri

10. Scape shorter than the leaves, over 1 mm thick; scape-bracts always imbricate; inflorescence always dense.
11. Sepals acute; inflorescence 2- rarely 4-flowered. Colombia, Ecuador.....G. pearcei
11. Sepals obtuse; inflorescence 4-6-flowered.
12. Upper scape-bracts with foliaceous blades exceeding the base of the inflorescence; sepals about 4 cm long with free lobes 15-20 mm long. Costa Rica, Colombia.....G. obtusiloba
12. Upper scape-bracts with short colored blades that do not attain the inflorescence; sepals 7 cm long with free lobes 35 mm long. Colombia.....G. sneidernii

2. Sepals not more than about 1/2 connate and then not forming a slender tube.
13. Spikes lax, at least toward base; flowers and floral bracts divergent to spreading at anthesis; flowers not fasciculate.
14. Inflorescence 3-pinnate or more at least at base.
15. Sepals 17-40 mm long.
16. Floral bracts cucullate; sepals acute, to 18 mm long. Lesser Antilles, Venezuela.....G. plumieri
16. Floral bracts nearly straight; sepals obtuse.
17. Sepals 35-40 mm long. Ecuador.....G. ecuadorensis
17. Sepals 17-20 mm long. Colombia, Ecuador.....G. bakeri
15. Sepals 8-14 mm long.
18. Leaf-blades broadly or rounded, apiculate.
19. Pedicels slender, equaling or exceeding the floral bracts. Colombia, Venezuela.....G. pennellii
19. Pedicels stout, shorter than the floral bracts. Colombia.....G. candelabrum
18. Leaf-blades with an attenuate apex.
20. Inflorescence amply pyramidal, lax. Colombia, Ecuador. G. diffusa
20. Inflorescence thyrsoid, dense. Costa Rica. G. condensata
14. Inflorescence not more than bipinnate.
21. Leaf-blades narrowly triangular or graminiform, 7-15 mm wide.
22. Inflorescence simple, lax at base only. Brazil. V. (63) flammea
22. Inflorescence compound. Colombia.
23. Pedicels distinct, 6-8 mm long; sepals 16 mm long. G. delicatula
23. Pedicels obscure, the flowers subsessile; sepals 8-11 mm long.
24. Leaves 20-25 cm long, the blades graminiform. G. bicolor
24. Leaves 13-16 cm long, the blades narrowly triangular. G. gracilior
21. Leaf-blades linear to ligulate, acuminate to rounded and apiculate, 20-110 mm wide.
25. Sepals acute, 15-40 mm long.

.26. Leaf-blades broadly acute and apiculate; flowers mostly secund.
27. Sepals 40 mm long; branch-axes shorter than the flowers. Colombia.....G. lehmanniana
27. Sepals 18 mm long; branch-axes much longer than the flowers. Lesser Antilles, Venezuela.....G. plumieri
26. Leaf-blades attenuate.
28. Branches several times longer than the lower primary bracts or the inflorescence simple. Amazonian Brazil, Colombia, Venezuela.....G. brasiliensis
28. Branches not more than twice as long as the lower primary bracts.
29. Spikes spreading to decurved.
30. Floral bracts lanceolate, acute; sepals 32 mm long. Jamaica.....G. fawcettii
30. Floral bracts broadly elliptic; sepals 21 mm long. Colombia (?).....G. straminea
29. Spikes suberect.
31. Leaf-blades plicate; sepals 17 mm long. Colombia. G. stricta
31. Leaf-blades not plicate; sepals 24-30 mm long.
32. Spikes to 3 cm long, largely covered by the ample primary bracts. Hispaniola.....G. ekmanii
32. Spikes to 8 cm long, almost fully exposed by the long but very narrow primary bracts. Colombia...G. pungens
25. Sepals narrowly subobtuse to broadly rounded.
33. Branches 2-4-flowered; sepals free, coriaceous, even. Costa Rica.....Vriesea spp.
33. Branches more than 4-flowered or else the sepals more or less connate or nerved or both.
34. Sterile base of at least the terminal branch bracteate or the inflorescence simple.
35. Inflorescence compound with all the branches with long sterile bracteate bases much exceeding the primary bracts.
36. Sepals 16-18 mm long; sterile base of branch as long as fertile part, 3-4-bracteate. Guiana, Peru, Bolivia. G. roezlii
36. Sepals 10 mm long; sterile base of branch much shorter than fertile part, 1-2-bracteate. Colombia, Ecuador. G. rhonhofiana
35. Inflorescence simple or compound with only the terminal branch with long sterile bracteate base. Costa Rica to Ecuador and Amazonian Brazil.....G. patula
34. Sterile bases of all the branches naked and shorter than the primary bracts.
37. Sepals not over 10 mm long; spikes few-flowered.
38. Primary bracts exceeding the lower branches; sepals nerved; spikes wholly lax. Colombia, Ecuador. G. multiflora
38. Primary bracts much shorter than all the branches; sepals nearly or quite even; spikes lax only at base.

Venezuela, Peru.....G. venamensis

37. Sepals 16-31 mm long.

39. Branches only 3 cm long, densely flowered except at base, suberect; pedicels stout, 3-6 mm long. Hispaniola. G. ekmanii

39. Branches 4-23 cm long.

40. Floral bracts orbicular with a triangular apiculus. Venezuela.....G. steyermarkii

40. Floral bracts with narrower base and broader apex.

41. Primary bracts all distinctly shorter than the branches

42. Sepals free to 3 mm connate, nerved.

43. Pedicels stout, 5-10 mm long; branches ascending, 13-23 cm long. Costa Rica, Colombia..G. costaricensis

43. Pedicels slender, 3 mm long; branches spreading, 6 cm long. Venezuela.....G. nubigena

42. Sepals 5-10 mm connate, even or nearly so.

44. Sepals glabrous. Central America, Colombia, Ecuador. G. scherzeriana

44. Sepals densely lepidote. Colombia, Ecuador. G. hitchcockiana

41. Primary bracts equaling or exceeding at least the lower branches.

45. Sepals but slightly exceeding the floral bracts; primary bracts not contracted between base and apex. Colombia, Ecuador.....G. bakeri

45. Sepals much exceeding the floral bracts; lower primary bracts contracted from a broadly ovate base into a long very narrowly triangular apex.

46. Sepals evenly coriaceous, broadly acute, 21 mm long. Colombia (?).....G. straminea

46. Sepals nerved with membranaceous crisped margins, obtuse, 31 mm long. Colombia.....G. radiata

13. Spikes dense throughout.

47. Floral bracts nearly or quite even or else irregularly rugose when dry as if fleshy and even in life.

48. Floral bracts irregularly rugose when dry; sepals 19-25 mm long.

49. Leaf-blades broadly rounded and apiculate; lower primary bracts suborbicular, apiculate. Ecuador....G. teuscheri

49. Leaf-blades acuminate; lower primary bracts long-acuminate from a broadly ovate base.

50. Inflorescence wholly lax; floral bracts ovate, 15-20 mm long. Venezuela.....G. virescens

50. Inflorescence dense at least toward apex; floral bracts broadly elliptic, 10 mm long. Ecuador, Peru. G. weberbaueri

48. Floral bracts not at all rugose.

51. Inflorescence densely digitate or subglobose, bipinnate.

52. Leaves and scape-bracts irregularly nodose-septate. Ecuador.....G. septata

52. Leaves and scape-bracts even except for the nerves.

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53. Sepals acute; leaf-sheaths usually finely purple-striped.. Costa Rica, Panama, Colombia.....G. subcorymbosa
53. Sepals obtuse; leaf-sheaths not striped.
54. Floral bracts and sepals pale; sepals connate for 3 mm; leaves usually with dark cross-bands. Amazonian Colombia and Brazil.....G. vittata
54. Floral bracts and sepals dark; sepals about half-connate; leaves concolorous except extreme base. Colombia. G. confusa
51. Inflorescence elongate and lax at least at base, or simple.
55. Sepals 32 mm long.
56. Inflorescence compound. Venezuela.....G. hedychioides
56. Inflorescence simple. Mexico.....Vriesea (217) malzinei
55. Sepals 11-18 mm long.
57. Terminal branch with a long sterile bracteate base or the inflorescence simple.
58. Scape-bracts imbricate. Panama.....G. filiorum
58. Scape-bracts shorter than the upper internodes at least. Costa Rica to Ecuador and Amazonian Brazil....G. patula
57. Terminal branch with a short naked sterile base like the lateral ones, inflorescence bipinnate.
59. Sepals 18 mm long; leaf-blades densely lepidote throughout. Ecuador.....G. lepidota
59. Sepals 11-13 mm long. Colombia, Venezuela. G. sphaeroidea
47. Floral bracts strongly and regularly nerved.
60. Inflorescence simple; leaf-blades narrowly triangular.
61. Leaf-blades densely cinereous-lepidote on both sides. Bolivia, Paraguay, Uruguay, Argentina. Tillandsia ixioides
61. Leaf-blades much more densely and conspicuously lepidote beneath. Brazil.....Vriesea (63) flammea
60. Inflorescence compound or if rarely simple then the leaf-blades ligulate.
62. Sepals 30-40 mm long.
63. Sepals acute, free. Lesser Antilles.....G. megastachya
63. Sepals obtuse, ca 1/3 connate. Colombia.....G. andreana
62. Sepals 8-20 mm long.
64. Leaf-blades attenuate.
65. Sepals acute, barely exserted.
66. Branches 2-6 cm long, fusiform or ellipsoid; floral bracts ovate. Panama, Colombia, Ecuador. G. calamifolia
66. Branches 10 cm long, cylindric; floral bracts truncate. Colombia.....G. stricta
65. Sepals rounded; from 1/3 to over 1/2 exserted.
67. Sepals 8 mm long. Venezuela.....G. acorifolia
67. Sepals 16-18 mm long. Costa Rica, Panama.
68. Branches 2-3-flowered; floral bracts ecarinate. G. donnellsmithii
68. Branches 5-12-flowered; floral bracts carinate. G. zahnii

64. Leaf-blades broadly acute or rounded, apiculate.
69. Inflorescence densely digitate.
70. Sepals broadly obtuse; primary bracts much exceeding the lower spikes. Nicaragua to Panama.....G. compacta
70. Sepals acute; primary bracts about equaling the lower spikes. Colombia.....G. goudotiana
69. Inflorescence elongate.
71. Floral bracts 15-20 mm long.
72. Floral bracts lepidote, very broadly elliptic, rounded. Venezuela.....G. nubicola
72. Floral bracts glabrous, oblong-lanceolate, broadly acute. Colombia.....Mezobromelia bicolor
71. Floral bracts to 9 mm long; glabrous.
73. Spikes globose or thick-ovoid, 25-30 mm long. Colombia, Venezuela, Ecuador.....G. mitis
73. Spikes subcylindric. Colombia.....G. vanvolxemii
1. Sepals wholly covered by the floral bracts or sometimes by the primary bracts or upper scape-bracts when the flowers are fascicled.
74. Flowers spicate or racemose, not fasciculate.
75. Inflorescence compound.
76. Axis distinct; inflorescence pinnate.
77. Branches laxly flowered at least at base; floral bracts nerved.
78. Sepals 8 mm long; inflorescence tripinnate. Peru. G. paniculata
78. Sepals 15-25 mm long; inflorescence rarely more than bipinnate.
79. Leaf-blades very narrowly triangular, 10 mm wide. Brazil.....Vriesea (61) corcovadensis
79. Leaf-blades ligulate, 35-90 mm wide.
80. Branches suberect or ascending; flowers suberect, regularly polystichous; sepals acute.
81. Leaf-blade 90 mm wide, its apex thickened and pungent; sepals narrowly lanceolate. Colombia. G. pungens
81. Leaf-blade 35-50 mm wide, its apex not notably thickened; sepals obovate. Ecuador. G. xanthobractea
80. Branches spreading; flowers becoming decurved-secund; sepals obtuse.
82. Primary bracts about equaling the lower branches. Colombia, Ecuador.....G. bakerii
82. Primary bracts much shorter than all the branches. Ecuador.....Mezobromelia fulgens
77. Branches densely flowered throughout.
83. Sepals 30-35 mm long.
84. Primary bracts ample, covering much of each branch. Lesser Antilles.....G. megastachya
84. Primary bracts inconspicuous, covering very little of each branch.
85. Floral bracts broadly elliptic, remaining extended.

Venezuela.....G. hedychioides

85. Floral bracts oblong-elliptic, each becoming convolute about its axillary flower. Colombia.....G. amplectens

83. Sepals 12-24 mm long.

86. Floral bracts membranaceous, prominently nerved; leaf-blades linear, long-attenuate, 5-25 mm wide.

87. Primary bracts lance-ovate, much exceeding the lower spikes; spikes broadly ovoid. Costa Rica. G. plicatifolia

87. Primary bracts broadly ovate, mostly equaling or shorter than the lower spikes.

88. Inflorescence lax, spikes fusiform or elliptic. Panama to Ecuador.....G. calamifolia

88. Inflorescence dense, spikes globose or stout-ellipsoid. Colombia.....G. goudotiana

86. Floral bracts firm, faintly nerved to even.

89. Sepals acute to acuminate.

90. Spikes slenderly fusiform, attenuate; leaf-blades 15 mm wide. Ecuador.....G. asplundii

90. Spikes broad, obtuse; leaf-blades 40-80 mm wide.

91. Floral bracts acute; spikes sessile, globose.

92. Inflorescence dense throughout; floral bracts nerved. Colombia.....G. densiflora

92. Inflorescence sublax except the extreme apex; floral bracts even or slightly rugulose. Peru..G. xipholepis

91. Floral bracts obtuse to broadly rounded and apiculate; spikes (at least the lower) distinctly stipitate, longer than wide.

93. Leaves and primary bracts variegated; leaf-blades 50-80 mm wide.

94. Marking of fine dark green wavy cross-lines; inflorescence tripinnate at base. Peru.....G. lindenii

94. Marking of fine red regular stripes; inflorescence bipinnate. Peru, Bolivia.....G. killipiana

93. Leaves and primary bracts not variegated; leaf-blades 40-50 mm wide.

95. Floral bracts even except near apex. Colombia to Suriname and Ecuador.....G. pleiosticha

95. Floral bracts strongly and regularly nerved throughout. Peru.....G. tarapotina

89. Sepals obtuse to broadly rounded.

96. Scape-bracts much shorter than the upper internodes. Peru G. brevispatha

96. Scape-bracts all imbricate.

97. Floral bracts strongly carinate toward apex; sepals 20-24 mm long. Costa Rica to Trinidad and Guiana. Vriesea (184) splitgerberi

97. Floral bracts convex and ecarinate throughout.

98. Scape-bracts castaneous or striped.

99. Scape-bracts castaneous; spikes broadly ovoid, nearly as wide as long. Colombia.....G. cuatrecasasii

99. Scape-bracts striped. Ecuador.

100. Lateral spikes much shorter than the terminal. G. striata
100. Lateral spikes about equal to the terminal. G. aequatorialis
98. Scape-bracts green, concolorous.
101. Floral bracts to 27 mm long, densely punctulate-lepidote inflorescence wholly lax. Venezuela.....G. ventricosa
101. Floral bracts to 15 mm long, soon glabrous; inflorescence dense toward apex. Costa Rica, Panama. G. polycephala
76. Axis very short; inflorescence densely digitate.
102. Sepals 30 mm long; floral bracts recurving. Ecuador. G. osyana
102. Sepals 12-26 mm long; floral bracts erect.
103. Primary and floral bracts uniformly deep red, drying dark brown. Ecuador, Peru.....G. morreniana
103. Primary and floral bracts paler, green or bicolorous.
104. Floral bracts acute.
105. Leaves septate; floral bracts coriaceous, even. Ecuador.....G. septata
105. Leaves not septate; floral bracts nerved at least toward apex.
106. Scape-bracts barely imbricate and exposing much of the upper internodes; sepals 12-15 mm long. Colombia. G. goudotiana
106. Scape-bracts all densely imbricate and wholly concealing the scape; sepals 16-22 mm long. Panama, Colombia.....G. glomerata
104. Floral bracts broadly rounded, obtuse or apiculate.
107. Primary bract inconspicuous, the 2 spikes cylindric, 18-27 cm long. Ecuador, Peru.....G. bipartita
107. Primary bracts equaling or exceeding, the axillary spikes; spikes 3-8 cm long.
108. Floral bracts coriaceous, even. Colombia, Ecuador. G. acuminata
108. Floral bracts thin, nerved. Colombia.....G. eduardii
75. Inflorescence simple.
109. Leaf-blades narrowly triangular or finely subulate, regularly long-attenuate.
110. Floral bracts firm, coriaceous or subcoriaceous. Tillandsia spp.
110. Floral bracts thin, membranaceous or papyraceous.
111. Leaf-scales asymmetric with large divergent to spreading basal lobes.....Tillandsia spp.
111. Leaf-scales symmetric, appressed or the margin raised slightly all around.
112. Sheaths inconspicuous; blades triangular or crescentiform in cross-section, 5-13 mm wide....Tillandsia spp.
112. Sheaths conspicuous, ample, abruptly contracted into the flat blades.
113. Sepals lepidote, 25-35 mm long.....Tillandsia spp.
113. Sepals glabrous.

114. Leaf-sheaths dark castaneous, contrasting with the blades Vriesea spp.
114. Leaf-sheaths concolorous with the blades.
115. Plant stemless or nearly so; posterior sepals carinate. Mexico, Central America.....Tillandsia brachycaulos
115. Plant caulescent; sepals all convex and ecarinate. Nicaragua to Ecuador.....G. angustifolia
109. Leaf-blades linear or ligulate, acuminate to rounded and retuse.
116. Floral bracts firm, coriaceous or subcoriaceous.
117. Sepals 20-35 mm long.
118. Inflorescence polystichous-flowered only at base, above distichous-flowered. Cuba. Vriesea (125h) platynema var. wrightii
118. Inflorescence polystichous-flowered throughout.
119. Floral bracts all acute. Ecuador, Peru.....G. conifera
119. Floral bracts, or at least the upper ones, rounded.
120. Inflorescence globose or broadly ellipsoid; sepals acute. Venezuela.....G. mucronata
120. Inflorescence cylindric; sepals obtuse.
121. Sepals dark castaneous, even, lustrous. Peru. G. bipartita
121. Sepals stramineous, nerved. Colombia, Venezuela. G. cylindrica
117. Sepals 11-16 mm long.
122. Floral bracts brown, red, or castaneous at least basally.
123. Leaves retuse; floral bracts orbicular. Colombia, Venezuela, Bolivia.....G. retusa
123. Leaves not retuse; floral bracts narrower.
124. Floral bracts with a narrowly triangular strongly nerved green apex. Colombia.....G. triangularis
124. Floral bracts uniform.
125. Floral bracts only slightly exceeding the sepals. Costa Rica to Venezuela and Ecuador..G. coriostachya
125. Floral bracts about twice as long as the sepals. Ecuador, Peru.....G. devansayana
122. Floral bracts wholly green or stramineous.
126. Scape-bracts shorter than the internodes; floral bracts acute. Colombia.....G. pallida
126. Scape-bracts imbricate; at least the upper floral bracts rounded and apiculate.
127. Leaf-blades rounded and apiculate, covered with pale appressed scales; flowers about 3-ranked. Panama. G. filiorum
127. Leaf-blades acuminate; flowers much more than 3-ranked.
128. Sheaths dark castaneous toward base; plant propagating by short erect stolons. Ecuador.....G. fosteriana
128. Sheaths green with faint stripes; plant without stolons. Peru.....G. strobilantha
116. Floral bracts thin, chartaceous or membranaceous.
129. Inflorescence fertile throughout.

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130. Floral bracts with divergent apices, to 45 mm long; sepals to 27 mm long. Costa Rica.
Vriesea (105) heliconioides var. polysticha
130. Floral bracts wholly erect and imbricate.
131. Sepals acuminate; floral bracts dark-lepidote. Colombia to Bolivia.....G. calothyrsus
131. Sepals broadly rounded; floral bracts not dark-lepidote.
132. Sepals 15 mm long. Colombia to Bolivia and Amazonian Brazil.....G. melinonis
132. Sepals 20-25 mm long.
133. Upper floral bracts acute or narrowly obtuse. Ecuador G. bracteosa
133. Upper floral bracts broadly rounded.
134. Sepals coriaceous, dark castaneous; lower floral bracts obtuse; leaf-blades subglabrous. Panama, Greater Antilles.....G. erythrolepis
134. Sepals membranaceous; lower floral bracts broadly acute; leaf-blades densely pale-lepidote beneath. Mexico, Central America.....G. nicaraguensis
129. Inflorescence sterile toward apex.
135. Leaf-blades broadly rounded and apiculate.
136. Sepals 25 mm long, subcoriaceous. Ecuador..G. fusispica
136. Sepals 12 mm long; membranaceous. Peru.....G. apiculata
135. Leaf-blades acute or acuminate.
137. Sepals firm, coriaceous or subcoriaceous.
138. Bracts of the inflorescence dimorphic, the apical uniformly red, the others pale with dark stripes; sepals to 18 mm long. Southern Florida, West Indies and Nicaragua to northern Brazil and Peru..G. monostachia
138. Bracts of the inflorescence all alike.
139. Sepals 22 mm long; flowers to 60 mm long, exceeding the floral bracts. Panama, Republica Dominicana, Puerto Rico.....G. berteroniana
139. Sepals 12 mm long; flowers 22 mm long, not exceeding the floral bracts. Ecuador.....G. fuerstenbergiana
137. Sepals thin, membranaceous or chartaceous.
140. Leaf-blades densely pale-lepidote beneath. Venezuela. G. membranacea
140. Leaf-blades subglabrous or obscurely lepidote.
141. Flowers about 3-ranked, barely imbricate. Costa Rica. G. stenostachya
141. Flowers about 6-ranked, densely imbricate. Ecuador. G. remyi
74. Flowers fasciculate.
142. Inflorescence compound, the flowers deep in the axils of the large primary bracts.
143. Sepals 40-60 mm long.
144. Fascicles many-flowered. Lesser Antilles..G. megastachya
144. Fascicles few-flowered.
145. Floral bracts ovate, acute, 50-60 mm long; petals violet Ecuador.....G. poortmanii
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145. Floral bracts oblong with membranous dilated apices, 60-80 mm long; petals white. Colombia, Ecuador. G. wittmackii

143. Sepals 8-33 mm long.
146. Leaf-blades narrowly triangular or subtriangular, long-attenuate; sepals 8-18 mm long.
147. Flowering shoot 20 cm high; leaf-blades 16 mm wide, soon glabrous above; plant caulescent. Colombia. G. kraenzliniana
147. Flowering shoot 35-55 cm high; leaf-blades conspicuously cinereous-lepidote above.
148. Sepals from slightly to half exserted above the lanceolate floral bracts; leaf-blades densely lepidote on both sides. Colombia, Ecuador.....G. mosquerae
148. Sepals more than half exserted above the suborbicular floral bracts; leaf-blades soon glabrous beneath. Colombia, Venezuela.....G. confinis
146. Leaf-blades ligulate.
149. Flowers not more than 2 in each axillary fascicle; sepals coriaceous, ecarinate.....Vriesea spp.
149. Flowers more than 2 in at least the lower axillary fascicles.
150. Sepals coriaceous, even or at most marginally or apically nerved.
151. Fascicles 10-15-flowered.
152. Pedicels slender, 12-15 mm long. Lesser Antilles. G. dussii
152. Pedicels short and stout. Greater Antilles to Colombia Trinidad and Peru.....Vriesea (186) capituligera
151. Fascicles few-flowered.
153. Sepals broadly elliptic to suborbicular....Vriesea spp.
153. Sepals lanceolate, their apical third subchartaceous. Colombia.....G. verecunda
150. Sepals uniformly thin and nerved.
154. Primary bracts conspicuously lepidote on at least one side.
155. Lower primary bracts overtopping the center of the inflorescence; scape-bracts white-lepidote on both sides; sepals 18-20 mm long. Colombia to Guyana and Peru.....G. squarrosa
155. Lower primary bracts well exceeded by the center of the inflorescence.
156. Inflorescence subglobose; fascicles 2-5-flowered; sepals 20 mm long. Colombia.....G. palustris
156. Inflorescence elongate; fascicles about 10-flowered.
157. Flowers subsessile; sepals 23 mm long. Venezuela to Ecuador.....G. lychnis
157. Flowers slenderly pedicellate; sepals 33 mm long. Colombia.....G. danielii
154. Primary bracts glabrous or obscurely lepidote.
158. Sepals 22-30 mm long, free or nearly so; fascicles many-flowered.

159. Inflorescence dense; primary bracts suberect. Colombia, Ecuador.....G. gloriosa
159. Inflorescence lax; primary bracts spreading. Ecuador, Peru.....G. variegata
158. Sepals 12-14 mm long, high-connate; fascicles few-flowered. Colombia.
160. Sepal-blades acute; inflorescence sublax; leaf-blades 15 mm wide.....G. longipetala
160. Sepal-blades suborbicular; inflorescence dense; leaf-blades 20-35 mm wide.....G. sibundoyorum
142. Inflorescence simple, its outer bracts forming a cyathiform involucre 6 cm or longer that exceeds and conceals the large flowers.
161. Scape evident; flowers not over 45 mm long; sepals free. British Honduras and West Indies to Bolivia and Brazil. G. lingulata
161. Scape lacking; flowers to 70 mm long; sepals connate for 4 mm. Costa Rica, Colombia, Venezuela, Trinidad, Tobago, and Ecuador.....G. sanguinea

GUZMANIA

Relative to Mez in Engler, Pflanzenreich IV. Fam. 32. 1935. (Synonymy in separate list following)

ACORIFOLIA (Griseb.) Mez; Pflr. 631.
ACUMINATA L. B. Smith, Phytologia 4: 359. 1953.
AEQUATORIALIS L. B. Smith, Phytologia 6: 435. 1959.
AMPLECTENS L. B. Smith, Contr. U. S. Nat. Herb. 29: 292. 1949.
ANDREANA (E. Morr.) Mez; Pflr. 626.
ANGUSTIFOLIA (Baker) Wittm.; Pflr. 611.
Var. ANGUSTIFOLIA. Floral bracts dark red, sometimes with dark apices.
Var. NIVEA L. B. Smith, Phytologia 5: 178. 1955. Floral bracts pure white.
APICULATA L. B. Smith; Pflr. 612.
ASPLUNDII L. B. Smith, Phytologia 6: 436. 1959.
BAKERI (Wittm.) Mez; Pflr. 625.
BERTERONIANA (Schult. f.) Mez; Pflr. 611.
BICOLOR L. B. Smith, Phytologia 13: 457. 1966.
BIPARTITA L. B. Smith, Phytologia 6: 437. 1959.
BRACTEOSA (André) André ex Mez; Pflr. 614.
BRASILIENSIS Ule; Pflr. 633.
BREVISPATHA Mez; Pflr. 622.
CALAMIFOLIA André ex Mez; Pflr. 622.
CALOTHYRSUS Mez; Pflr. 615. No parenthetical authority because Beer's name is invalid.
CANDELABRUM (André) André ex Mez; Pflr. 625.
CARICIFOLIA (André ex Baker) L. B. Smith, Contr. Gray Herb. 104: 74. 1934.
COMPACTA Mez; Pflr. 632.
CONDENSATA Mez & Werckle; Pflr. 635.
CONFINIS L. B. Smith, Fieldiana Bot. 28: 143. 1951.

CONFUSA L. B. Smith, sp. nov. A G. vittata Mart. ex Schult. . f.) Mez, cui affinis, bracteis florigeris sepalisque atris, sepalis circa medio connatis, foliis basi ima excepta concoloribus differt.

PLANT stemless, to nearly 6 dm high. LEAVES over 10 in a funnelform rosette, straight, 5 dm long, castaneous at extreme base, otherwise green and concolorous; sheaths broad, 8-10 cm long; blades ligulate, acuminate, 3 cm wide. SCAPE erect, slender; scape-bracts tightly imbricate, the lower foliaceous, the upper lanceolate, acuminate. INFLORESCENCE densely digitate from a few spikes; primary bracts triangular-ovate, attenuate, shorter than the spikes; spikes sessile, broadly ellipsoid, dense, 3 cm long. FLORAL BRACTS suborbicular, shorter than the sepals, coriaceous, even, dark castaneous, obscurely punctulate; flowers subsessile. SEPALS elliptic, obtuse, 11 mm long, like the floral bracts, about half connate, the posterior carinate. Pl. I, fig. 1: Inflorescence; fig. 2: Sepals.

COLOMBIA: VALLE: Cordillera Occidental, western slope: woods, left bank of Río Sanquininí, La Laguna, 1250-1400 m alt, 10-20 December 1943, Cuatrecasas 15496 (VALLE, type; US, photo).

CONIFERA (André) Andre ex Mez; Pflr. 615.

CORIOSTACHYA (Griseb.) Mez; Pflr. 618.

COSTARICENSIS Mez & Werckle; Pflr. 635.

CUATRECASASII L. B. Smith, sp. nov. A G. aequatoriale L. B. Smith, cui affinis, scapi bracteis supremis apice excepto atro-castaneis, sepalis subliberis, apice obtuse cuspidatis differt.

PLANT known from only the upper scape and fruiting inflorescence. LEAVES presumably with ligulate blades judging from the form of the scape-bracts. SCAPE straight, ca 6 mm in diameter; scape-bracts densely and tightly imbricate, broadly ovate, dark castaneous except for the short pale apex. INFLORESCENCE densely bipinnate, subglobose, 8 cm long; primary bracts like the upper scape-bracts, slightly shorter than the axillary branches; spikes broadly ellipsoid, 3 cm long, strobilate. FLORAL BRACTS broadly ovate, obtusely cuspidate, slightly shorter than the sepals in fruit, coriaceous, even, dark castaneous; flowers subsessile. SEPALS broadly elliptic, 15 mm long, coriaceous, obtusely cuspidate, subfree, dark castaneous. Pl. I, fig. 3: Inflorescence; fig. 4: Floral bract and sepals.

COLOMBIA: CAQUETÁ: open forest, Cajón de Pulido, gorge of the Río Hacha, eastern slope of the Cordillera Oriental, 1700 m alt, 26 March 1940, Cuatrecasas 8762 (F, type; US, photo).

CYLINDRICA L. B. Smith, Phytologia 5: 282. 1955.

DANIELII L. B. Smith, Phytologia 4: 360. 1953.

DELICATULA L. B. Smith, Phytologia 6: 433. 1959.

DENSIFLORA Mez; Pflr. 622.

DEVANSAYANA E. Morr.: Pflr. 615.

DIFFUSA L. B. Smith, Caldasia 5: 2. 1948.

DISSITIFLORA (André) L. B. Smith, Contr. Gray Herb. 104: 74. 1934.

DONNELLSMITHII Mez ex Donnell Smith; Pflr. 631.

DUDLEYI L. B. Smith, sp. nov. A G. sprucei (André) L. B.

Smith atque G. dissitiflora (André) L. B. Smith, cuibus affinis, inflorescentia ramosa, sepalis bracteas florigeras valde superantibus, pedicellis conspicuis differt.

PLANT evidently stemless, flowering to 2 m high. LEAVES spreading, 8 dm long, obscurely lepidote throughout; sheaths elliptic, 2 dm long; blades ligulate, acute and apiculate, flat, 65 mm wide, dark green above, red-purple beneath. SCAPE erect, glabrous; scape-bracts erect, the lower subfoliaceous and imbricate, the upper ovate, acuminate, shorter than the internodes. INFLORESCENCE very laxly bipinnate, glabrous; axes red; primary bracts like the upper scape-bracts, shorter than the long sterile bases of the branches; racemes spreading, laxly few-flowered. FLORAL BRACTS obovate, about equaling the pedicels, yellow; pedicels slender, to 13 mm long. SEPALS 35 mm long, more than 2/3 connate in a slender tube, the blades broadly obovate, 9 mm long; petals always (?) included. Pl. I, fig. 5: Lateral raceme; fig. 6: Calyx laid open.

PERU: HUANUCO: common terrestrial plant at Camp 3 (Laguna), in dense cloud forest, southwestern slope of the Río LlullaPichis watershed, on the ascent of Cerro del Sira, 9° 26' S, 74° 45' W, 1290 m alt, 22 July 1969, Dudley 13076 (US, type; NA, isotype); 17 July 1969, Wolfe in Dudley 12347 (US, NA).

DUSSII Mez; Sm. & Pitt., Journ. Wash. Acad. Sci. 43: 402. 1953

ECUADORENSIS Gilmartin, Phytologia 16: 166. 1968.

EDUARDII André ex Mez; Pflr. 632.

EKMANII (Harms) Harms ex Mez; Pflr. 626.

ERYTHROLEPIS Brongn. ex Planch.; Pflr. 614.

FAWCETTII Mez; Pflr. 636.

FILIORUM L. B. Smith, Phytologia 19: 284. 1970.

FOSTERIANA L. B. Smith, Phytologia 7: 107. 1960.

FUERSTENBERGIANA (Kirchh. & Wittm.) Wittm.; Pflr. 613.

FUSISPICA Mez & Sodiro; Pflr. 612.

GLOBOSA L. B. Smith, Phytologia 4: 362. 1953.

GLOMERATA Mez & Werckle; Pflr. 623.

GLORIOSA (André) André ex Mez; Sm. & Pitt. Journ. Wash. Acad. Sci. 43: 402. 1953.

GOUDOTIANA Mez; Pflr. 630.

GRACILIOR (André) Mez; Pflr. 627.

GRAMINIFOLIA (André ex Baker) L. B. Smith, Contr. Gray Herb. 104: 74. 1934.

HEDYCHIOIDES L. B. Smith, Bromel. Soc. Bull. 5: 69. 1955.

HITCHCOCKIANA L. B. Smith, Proc. Am. Acad. (Contr. Gray Herb. 106:) 70: 148. 1935.

KALBREYERI (Baker) L. B. Smith, Contr. Gray Herb. 104: 74. 1934.

KILLIPIANA L. B. Smith; Pflr. 624.

KRAENZLINIANA Wittm.; Sm. & Pitt., Journ. Wash. Acad. Sci. 43: 402. 1953.

Var. KRAENZLINIANA. Sepals 8 mm long; petals 19 mm long.

Var. MACRANTHA L. B. Smith, Phytologia 5: 397. 1956. Sepals 18 mm long; petals over 60 mm long.

LEHMANNIANA (Wittm.) Mez; Pflr. 625.

LEPIDOTA (André) André ex Mez; Pflr. 630.

LINDENII (André) Mez; Pflr. 623.

LINGULATA (L.) Mez; Pflr. 608.

Var. LINGULATA. Plants large. Leaves concolorous; blades more than 25 mm wide. Inflorescence with outer bracts erect, red or pink. Floral bracts strongly cucullate; flowers numerous.

Var. SPLENDENS (Planch.) Mez; Pflr. 609. Plants large. Leaves marked with deep purple longitudinal stripes; blades more than 25 mm wide. Inflorescence with outer bracts erect, red or pink. Floral bracts strongly cucullate; flowers numerous.

Var. CARDINALIS (André) André ex Mez, DC. Mon. Phan. 9: 900. 1896. Leaf-blades 30-40 mm wide. Inflorescence with outer bracts spreading, bright scarlet. Floral bracts strongly cucullate; flowers numerous.

Var. MINOR (Mez) Sm. & Pitt., Phytologia 7: 105. 1960. Plants small. Leaf-blades usually not over 25 mm wide, concolorous with the sheaths. Inflorescence with outer bracts erect, red. Floral bracts weakly cucullate; flowers few.

Var. FLAMMEA (L. B. Smith) L. B. Smith, Phytologia 7: 105. 1960. Leaves 24-34 cm long, exceeding the inflorescence; sheaths castaneous; blades 10-17 mm wide. Inflorescence with outer bracts erect, bright scarlet. Floral bracts weakly cucullate.

LONGIPETALA (Baker) Mez; Sm. & Pitt., Journ. Wash. Acad. Sci. 43: 402. 1953.

LYCHNIS L. B. Smith, Phytologia 4: 363. 1953.

MEGASTACHYA (Baker) Mez; Pflr. 620.

MELINONIS Regel; Pflr. 614.

MEMBRANACEA L. B. Smith & Steyermark, Acta Bot. Venez. nos. 5, 6, 7 & 8: 380. 1968.

MITIS L. B. Smith, Contr. Gray Herb. 98: 31. 1932.

MONOSTACHIA (L.) Rusby ex Mez; Pflr. 612.

Var. MONOSTACHIA. Leaf-blades concolorous. Fertile floral bracts pale with dark brown longitudinal stripes.

Var. VARIEGATA hort. ex Nash in L. H. Bailey, Standard Cyclop. Hortic. 2: 1419. 1935, nomen illeg.; Foster, Bromel. Soc. Bull. 3: 30. 1953. Leaf-blades longitudinally green- and white-striped Bracts as in the typical variety.

Var. ALBA Ariza-Julia, Bromel. Soc. Bull. 9: 38. 1959. Leaves concolorous. Floral bracts wholly green, the upper sterile ones pure white.

MORRENIANA (Linden Hortus) Mez; Pflr. 623.

MOSQUERAE (Wittm.) Mez; Sm. & Pitt., Journ. Wash. Acad. Sci. 43: 402. 1953.

MUCRONATA (Griseb.) Mez; Pflr. 616.

MULTIFLORA (André) André ex Mez; Pflr. 628.

MUSAICA (Linden & André) Mez; Pflr. 607.

Var. MUSAICA. Leaves marked with fine dark irregular transverse lines.

Var. ZEBRINA Cutak, Mo. Bot. Gard. Bull. 38: 77, 78. 1950. Leaves marked with broad solid bands of color.

Var. CONCOLOR L. B. Smith, Contr. U. S. Nat. Herb. 29: 293. 1949. Leaves concolorous.

NICARAGUENSIS Mez & C. F. Baker; Pflr. 614.
NUBICOLA L. B. Smith, Mem. N. Y. Bot. Gard. 9: 316. 1957.
NUBIGENA L. B. Smith, Phytologia 4: 355. 1953.
OBTUSILOBA L. B. Smith, Contr. Gray Herb. 104: 74. 1934.
OSYANA (E. Morr.) Mez; Pflr. 618.
PALLIDA L. B. Smith; Pflr. 617.
PALUSTRIS (Wittm.) Mez; Sm. & Pitt., Journ. Wash. Acad. Sci. 43: 403. 1953.
PANICULATA Mez; Pflr. 633.
PATULA Mez & Werckle; Pflr. 628.
PEARCEI (Baker) L. B. Smith, Contr. Gray Herb. 104: 74. 1934.
PENNELLII L. B. Smith, Contr. Gray Herb. 98: 30. 1932.
PLEIOSTICHA (Griseb.) Mez; Pflr. 621.
PLICATIFOLIA L. B. Smith; Pflr. 622.
PLUMIERI (Griseb.) Mez; Pflr. 635.
POLYCEPHALA Mez & Werckle; Pflr. 621.
POORTMANII (André) André ex Mez; Sm. & Pitt., Journ. Wash. Acad. Sci. 43: 403. 1953.
PUNGENS L. B. Smith, Contr. U. S. Nat. Herb. 29: 293. 1949.
RADIATA L. B. Smith, Contr. U. S. Nat. Herb. 29: 294. 1949.
REMYI L. B. Smith, Phytologia 19: 285. 1970.
RETUSA L. B. Smith, Fieldiana Bot. 28, no. 1: 143. 1951.
RHONHOFIANA Harms, Notizblatt 14: 329. 1939.
ROEZLII (E. Morr.) Mez; Pflr. 633.
SANGUINEA (André) André ex Mez; Pflr. 609.
Var. SANGUINEA. Leaves to 4 dm long; blades to 55 mm wide. Floral bracts rounded and apiculate, flat. Petal-blades white.
Var. BREVIPEDICELLATA Gilmartin, Phytologia 16: 164. 1968. Leaves mostly not over 20 cm long; blades to 25 mm wide. Floral bracts acute, to 22 mm long, subcucullate; pedicels short.
SCHERZERIANA Mez; Pflr. 635.
SEPTATA L. B. Smith, Phytologia 6: 437. 1959.
SIBUNDOYORUM L. B. Smith, Phytologia 4: 364. 1953.
SNEIDERNII L. B. Smith, Contr. Gray Herb. 117: 9. 1937.
SPHAEROIDEA (André) André ex Mez; Pflr. 630.
SPRUCEI (André) L. B. Smith, Contr. Gray Herb. 104: 75. 1934.
SQUARROSA (Mez & Sodiro) Sm. & Pitt., Journ. Wash. Acad. Sci. 43: 403. 1953.
STENOSTACHYA L. B. Smith, Contr. Gray Herb. 117: 9. 1937.
STEYERMARKII L. B. Smith, Phytologia 7: 419. 1961.
STRAMINEA (K. Koch) Mez; Pflr. 626.
STRIATA L. B. Smith, Phytologia 6: 438. 1959.
STRICTA L. B. Smith, Contr. U. S. Nat. Herb. 29: 297. 1949.
STROBILANTHA (R. & P.) Mez; Pflr. 616.
SUBCORYMBOSA L. B. Smith, Contr. Gray Herb. 117: 10. 1937.
TARAPOTINA Ule; Pflr. 625.
TEUSCHERI L. B. Smith, Bromel. Soc. Bull. 9: 86. 1960.
TRIANGULARIS L. B. Smith, Phytologia 4: 364. 1953.
VANVOLXEMII (André) André ex Mez; Pflr. 628.
VARIEGATA L. B. Smith, Phytologia 7: 108. 1960.
VENAMENSIS L. B. Smith, sp. nov. A G. multiflora (André) André ex Mez, cui affinis, bracteis primariis quam ramis multo

brevioribus, spicis base solum laxis, sepalis laevibus vel sublaevibus differt.

PLANT stemless, flowering to 9 dm high. LEAVES numerous, 5-6 dm long, sparsely and finely lepidote; sheaths elliptic, large, castaneous toward base; blades ligulate, broadly acute and apiculate, flat, ca 25 mm wide, concolorous. SCAPE erect, slender, red-violet, sparsely pale-lepidote, soon glabrous; scape-bracts erect, the lower subfoliaceous and imbricate, the upper ovate, acuminate, mostly shorter than the internodes. INFLORESCENCE bipinnate, lax, 8-17 cm long, sparsely pale-lepidote; primary bracts like the upper scape-bracts, all much shorter than the axillary branches but exceeding their naked sterile bases; spikes spreading, ovoid or ellipsoid, 25-40 mm long, dense except at base. FLORAL BRACTS broadly ovate, obtuse, much shorter than the sepals, nearly or quite even; flowers subsessile. SEPALS free or nearly so, elliptic, obtuse, to 10 mm long, the posterior carinate; petals greenish-yellow, the blades spreading, elliptic, 6 mm long, barely exceeding the stamens. Pl. I, fig. 7: Inflorescence; fig. 8: Floral bract and flower.

VENEZUELA: BOLÍVAR: mossy dwarf mountain forest, crest of sandstone cliff, southwestern Cerro Venamo near Guyana line, 1400-1450 m alt, 1 January 1964, Steyermark & Dunsterville 92522 (US, type; VEN, isotype); forested slopes of Cerro Venamo, southeast of km 125, 1200 m alt, 14 April 1960, Steyermark & Nilsson 108 (US, VEN); rainforest, km 134, El Dorado to La Gran Sabana, 1200 m alt, 19 February 1968, Bunting 2977 (US).

PERU: CUZCO: Convención: epiphyte, dense cloud forest near Camp 2, ca 10 km walking distance northeast of Hacienda Luisiana and Río Apurimac, 1460 m alt, 28 June 1968, Dudley 10561 (NA).

VENTRICOSA (Griseb.) Mez; Pflr. 620.

VERECUNDA L. B. Smith, Phytologia 4: 366. 1953.

VIRESCENS (Hook.) Mez; Pflr. 630.

VITTATA (Mart. ex Schult. f.) Mez; Pflr. 632.

WEBERBAUERI Mez; Pflr. 628.

WITTMACKII (André) André ex Mez; Sm. & Pitt. Journ. Wash. Acad. Sci. 43: 403. 1953.

XANTHOBRACTEA Gilmartin, Phytologia 16: 165. 1968.

XIPHOLEPIS L. B. Smith, Phytologia 9: 248. 1963.

ZAHNII (Hook. f.) Mez; Pflr. 629.

SYNONYMS AND EXCLUDED NAMES

altsonii L. B. Smith, Contr. Gray Herb. 89: 7. 1930 - PLEIOSTICHA.

balanophora Mez; Pflr. 414 - VRIESEA B.

beleana (André) André; Pflr. 631 - VIRESCENS.

brachycephala (Baker) Mez; Pflr. 611 - STROBILANTHA.

capitulata Mez & Werckle; Pflr. 632 - COMPACTA.

capituligera (Griseb.) Mez; Pflr. 619 - VIRESEA C.

cardinalis (André) Mez; Pflr. 609 - LINGULATA var. C.

columnaris Mez & Sodiro; Pflr. 619 - GLORIOSA.

cornuaultii (André) André ex Mez; Pflr. 423 - TILLANDSIA

TURNERI var. TURNERI.
crateriflora Mez & Werckle; Pflr. 610 - SANGUINEA.
cryptantha L. B. Smith, Caldasia [1], No. 5: 6. 1942 - SQUARROSA.
Var. pauciflora L. B. Smith, Phytologia 4: 214. 1953 - SQUARROSA sens lat.
dielsii Harms, Notizblatt 12: 538. 1935 - WEBERBAUERI.
drewii L. B. Smith, Contr. U. S. Nat. Herb. 29: 526. 1954 - BAKERI.
elongata Mez & Sodiro; Pflr. 627 - BAKERI.
geniculata L. B. Smith, Journ. Wash. Acad. Sci. 42: 282. 1952 - SPHAEROIDEA.
guatemalensis L. B. Smith, Contr. Gray Herb. 117: 8. 1937 - SCHERZERIANA.
harrisii Mez; Pflr. 619 - VRIESEA CAPITULIGERA.
herthae Harms, Notizblatt 14: 329. 1939 - SCHERZERIANA.
laxa Mez & Sodiro; Pflr. 617 - MONOSTACHIA.
michelii Mez; Pflr. 618 - CORIOSTACHYA.
minor Mez; Pflr. 610 - LINGULATA var. MINOR.
nigrescens (André) Mez; Pflr. 617 - CORIOSTACHYA.
parviflora Ule; Pflr. 617 - STROBILANTHA.
platysepala Mez & C. F. Baker; Pflr. 613 - MONOSTACHIA var. MONOSTACHIA.
rosea L. B. Smith; Pflr. 614 - SPRUCEI.
sanguinea var. erecta (André) Mez; Pflr. 610 - unidentifiable, but certainly not in this species.
sodiroana Mez; Pflr. 620 - VIRESEA CAPITULIGERA.
splitgerberi Mez; Pflr. 621 - VRIESEA SPLITGERBERI.
strobilifera Mez & Werckle; Pflr. 618 - CORIOSTACHYA.
superba Suesseng., Bot. Jahrb. 72: 290. 1942 - SCHERZERIANA.
wrightii L. B. Smith, Contr. Gray Herb. 117: 11. 1937 - VRIESEA PLATYNEMA var. WRIGHTII.

Sodiroa - GUZMANIA

andreana Wittm.; Pflr. 600 - GUZMANIA OBTUSILOBA L. B. Smith, Contr. Gray Herb. 104: 74. 1934.
caricifolia André; Pflr. 602 - GUZMANIA CARICIFOLIA.
dissitiflora André; Pflr. 602 - GUZMANIA DISSITIFLORA.
graminiflora André; Pflr. 600 - GUZMANIA GRAMINIFOLIA.
kalbreyeri Baker; Pflr. 602 - GUZMANIA KALBREYERI.
pearcei Baker; Pflr. 600 - GUZMANIA PEARCEI.
sprucei André, Pflr. 602 - GUZMANIA SPRUCEI.
trianae Mez; Pflr. 602 - GUZMANIA GRAMINIFOLIA.

MISCELLANEOUS NOTES

DYCKIA HEBDINGII L. B. Smith, sp. nov. A D. maritima Baker, cui affinis, foliorum laminis utrinque dense lepidotis, staminibus inclusis, seminis ala apice acuta differt.

PLANT flowering over 1 m high. LEAVES numerous in a dense spreading rosette, ca 15 cm long; blades narrowly triangular,

over 15 mm wide at base, covered with appressed cinereous scales on both sides, subdensely serrate with spreading slender spines. SCAPE erect, slender, about 3 times as long as the leaves; scape-bracts exceeding the internodes but divergent, very narrowly triangular and wholly exposing the scape, serrulate, red. INFLORESCENCE laxly subtripinnate with branches to 30 cm long, densely cinereous-lepidote; primary bracts inconspicuous; spikes many-flowered, subdense to lax. FLORAL BRACTS broadly ovate, apiculate, 5 mm long, much exceeded by the sepals; flowers short-pedicellate, suberect to spreading and sometimes slightly secund. SEPALS ovate, broadly subacute, 4.5 mm long; petals spatulate, obtuse, 7 mm long, yellow; stamens included, free above the 1 mm tube with the petals; style slender, elongate. Capsule 8 mm long; seed with a narrow apically pointed wing. Pl. II, fig. 1: Habit; fig. 2: Leaf; fig. 3: Branchlet; fig. 4: Flower; fig. 5: Sepal; fig. 6: Petal and stamens; fig. 7: Seed.

BRAZIL: RIO GRANDE DO SUL: on rocks, Município Guayoro, Pôrto Alegre, Croizat seed no. 22.495, cultivated and flowered in Jardin Botanique "Les Cèdres", September 1970, Hebding in Hortus Marnier-Lapostolle s n (US, type).

PITCAIRNIA BIFARIA L. B. Smith, sp. nov. Ab omnibus speciebus foliis bifariis petiolatis integerrimis, inflorescentia simplicissima, bracteis florigeris superioribus quam pedicellis brevioribus, sepalis obtusis, ovulis alatis differt.

PLANT short-caulescent, flowering 4 dm high. LEAVES uniform, bifarious (distichous), strongly petiolate, entire, very sparsely and inconspicuously lepidote; sheaths narrowly triangular, inconspicuous; blades elliptic, acuminate, cuneate at base, to 30 cm long, 6 cm wide, flat. SCAPE erect, slender; scape-bracts narrowly triangular, long-attenuate, much exceeding the internodes. INFLORESCENCE simple, 13 cm long, lax, secund-flowered, white-lepidote. FLORAL BRACTS from narrowly triangular and exceeding the lower pedicels to ovate and shorter than the upper; pedicels divergent to spreading, slender, to 15 mm long. SEPALS lance-oblong, obtuse, 17 mm long, ecarinate; petals over 25 mm long, deep pink (Dudley), bearing a semiorbicular scale at base; stamens (immature) probably included; ovary more than $\frac{1}{2}$ inferior; ovules alate. Pl. III, fig. 1: Leaf; fig. 2: Inflorescence; fig. 3: Sepal.

PERU: HUÁNUCO: epiphytic in dense and damp cloud forest half way between Camp 3 (Laguna) and Camp 4 (Peligroso), southwestern slope of the Río LlullaPichis watershed, on the ascent of Cerro del Sira, 9° 26' S, 74° 45' W, 1400 m alt, 22 July 1969, Dudley 13087 (NA, type).

PITCAIRNIA WOLFEI L. B. Smith, sp. nov. A P. alborubra Baker, cui valde affinis, pedicellis sepalisque multo minoribus, ovario fere omnino infero differt.

PLANT flowering 6 dm high. LEAVES rosulate, to 1 m long, entire, sparsely pale-lepidote on both sides; sheaths triangular, inconspicuous; blades linear-lanceolate, attenuate, 35 mm wide, prominently nerved and channeled. SCAPE erect, slender, pale-lepidote; scape-bracts erect, the lower large and foliaceous, the

upper small, broadly ovate, much shorter than the internodes. INFLORESCENCE laxly racemose, 8-13 cm long, sparsely white-lepidote. FLORAL BRACTS broadly ovate, acute, 7 mm long, about half as long as the p edicels at anthesis; pedicels spreading, slender, to 12 mm long in fruit. SEPALS narrowly triangular, broadly obtuse, 13 mm long, green; petals obtuse, 35 mm long, greenish white tipped with purple, obscurely and irregularly appendaged; stamens included; ovary ellipsoid, red, almost wholly inferior. FRUIT indehiscent; seeds very narrowly winged. Pl. III, fig. 4: Inflorescence; fig. 5: Sepal.

PERU: HUÁNUCO: terrestrial, in very dark, wet rainforest on the steep sides and bottom of valley just below Camp 4 (Peligroso), southwestern slope of the Río LlullaPichis watershed, on the ascent of Cerro del Sira, 9° 25' S, 74° 44' W, 1535 m alt, 28 July 1969, Frank Wolfe in T. R. Dudley 12404 (NA, type); same, shallow valley just beyond Camp 4 (Peligroso), 1540 m alt, 25 July 1969, Dudley 13293 (NA, US).

RONNBERGIA EXPLODENS L. B. Smith, sp. nov. A R. maidifolia Mez, cui affinis, foliis serrulatis, vaginis amplis, inflorescentia sublaxa differt.

PLANT stoloniferous. LEAVES few, fasciculate, to 7 dm long, much exceeding the inflorescence, serrulate throughout, pale-lepidote beneath; sheaths ovate, ample; blades linear-lanceolate, acuminate, subpetiolate, 7 cm wide, thin, channeled. SCAPE erect slender, white-lepidote; scape-bracts erect and exceeding the internodes, the upper ones linear, attenuate, entire. INFLORESCENCE simple, sublax, 9-11 cm long, white-lepidote. FLORAL BRACTS suborbicular, apiculate, 5 mm long, green; flowers spreading. SEPALS 6.5 mm long with a large suborbicular wing overtopping the mucronulate apex, connate for 4 mm. FRUIT globose, 10 mm long, "upon slightest touch.....explodes releasing large quantities of mucilaginous seeds." Pl. III, fig. 6: Inflorescence; fig. 7: Sepal.

PERU: HUÁNUCO: epiphytic (but not more than 1 m above ground) and terrestrial, in dense cloud forest at Camp 3 (Laguna), southwestern slope of the Río LlullaPichis watershed on the ascent of Cerro del Sira, 9° 26' S, 74° 45' W, 1290 m alt, 21 July 1969, Dudley 13063 (US, type; NA, isotype); same, 19 July 1969, 13052 (NA); same, about halfway between Camp 3 (Laguna) and Camp 4 (Peligroso), 1450 m alt, 23 July 1969, 13176 (NA).

Tillandsia atroviridipetala Matuda, Cact. y Sucul. Mex. 2: 53, fig. 40. 1957 - PLUMOSA Baker, Journ. Bot. 26: 13. 1888. Synonymy omitted in Key to Tillandsia, Phytologia 20: 174. 1970.

Because of its filiform-attenuate tomentose-lepidote leaves Tillandsia atroviridipetala belongs in the synonymy of T. plumosa and not in that of T. mauryana (cf. Phytologia 7: 173. 1960) which has stouter leaf-blades with broad scales.

TILLANDSIA NANA Baker, Handb. Bromel. 172. 1889, emend. L. B. Smith, inflorescentia ramosa vel simplici, spicis distiche 2-3-floris, complanatis. T. calocephala Wittm. Meded. Rijks Herb. Leiden 29: 90. 1916.

PERU: INDEFINITE: Gay s n (P, type; GH, photo). AYACUCHO:

Aucará, 20 Feb 1967, Chinchay 3647 (US, USM). CUZCO: Urubamba, Weberbauer 2554 (B, F photo 11517); Caicai, Urubamba Valley, Aug 1926, Herrera 1146 (US); Uno, Calca, Jan 1937, Vargas 238 (GH, LIL); Ollainta, Urubamba Valley, 1 May 1954, Rauh & Hirsch P-1089 (U); Paucartambo, 8 May 1954, Rauh & Hirsch P-1100 (US); Calca, 29 Dec 1962, Iltis & Ugent 957 (US, WIS).

BOLIVIA: LA PAZ: Murillo, La Paz, 15 Dec 1920, Shepard 234 (GH, US). COCHABAMBA: Chapare (?): Río Montehuaiko, June 1911, Herzog 2300 (L, type of T. calocephala Wittm.; F photo 11484).

Reëxamination of the type of Tillandsia nana discloses that the spikes are distichous-flowered and that the species is in no way different from the later T. calocephala. In my key to the genus in Phytologia 20: 121. 1970, T. nana should be deleted on page 146 and should replace T. calocephala on page 125.

TILLANDSIA STENOURA var. TRIPINNATA (L. B. Smith) L. B. Smith, comb. nov. T. deppeana var. tripinnata L. B. Smith, Phytologia 5: 49. 1954. T. stenoura var. gonzalezii Gilmartin, Phytologia 16: 155. 1968. T. fendleri var. fendleri sensu L. B. Smith, Phytologia 20: 175. 1970.

ECUADOR: LOJA: páramos west of Saraguro, about 50 km north of Loja, 3° 05' S, 29° 14' W, 2500 m alt, 10 March 1947, Espinosa E-1412 (GH, type of T. stenoura var. gonzalezii Gilmartin).

PERU: SAN MARTÍN: San Roque, Jan-Feb 1930, L. Williams 7199 (F, GH); 7610 (F, GH). HUÁNUCO: Yanano, 1800 m alt, May 1923, Macbride 3766 (F, GH); Huacachi, Muna, May 20 - June 1, 1923, Macbride 4192 (F, GH); subtropical forest, below Carpish, Huanuco to Tingo María, 2300-2400 m alt, 23 June 1953, Ferreyra 9410 (US, type; USM, isotype).

My original description of this variety overlooked the character of beaked floral bracts, while the tripinnate nature of the inflorescence proved less important.

VRIESEA CITRINA (Baker) L. B. Smith, comb. nov. Tillandsia citrina Baker, Handb. Bromel. 224. 1889. Vriesea citrina E. Morr. ex Baker, Handb. Bromel. 224. 1889, nomen in synon.; ibid. (?), hort. Rev. Hort. 77: 127. 1905, nomen. Vriesea minarum L. B. Smith, Arquiv. Bot. Est. S. Paulo II. 1: 118, pl. 126. 1943.

BRAZIL: MINAS GERAIS: Serra da Piedade, 1500-1550 m alt, Warming 2176 (C, type); 10 July 1940, Foster 564 (GH, type of Vriesea minarum L. B. Smith; US); 27 Mar 1957, E. Pereira 2678 & G. Pabst 3514 (RB); Serra do Curral, Nova Lima, 1 Mar 1934, Mello Barreto 2097 (BHMG). INDEFINITE: Sellow 70 (P).

VRIESEA SPLENDENS var. FORMOSA Suringar ex Witte, Semperv. 18: [361]. 1889. Tillandsia longibracteata Baker, Journ. Bot. 26: 81. 1888. Vriesea splendens var. longibracteata (Baker) L. B. Smith, Smithsonian Misc. Coll. 126: 36. 1955; Phytologia 13: 116. 1966.

The name "formosa" is the oldest in the varietal category and thus should have been used in my revision of Vriesea in Phytologia.

Smithsonian Institution
Washington, D. C., U. S. A.

Plate I

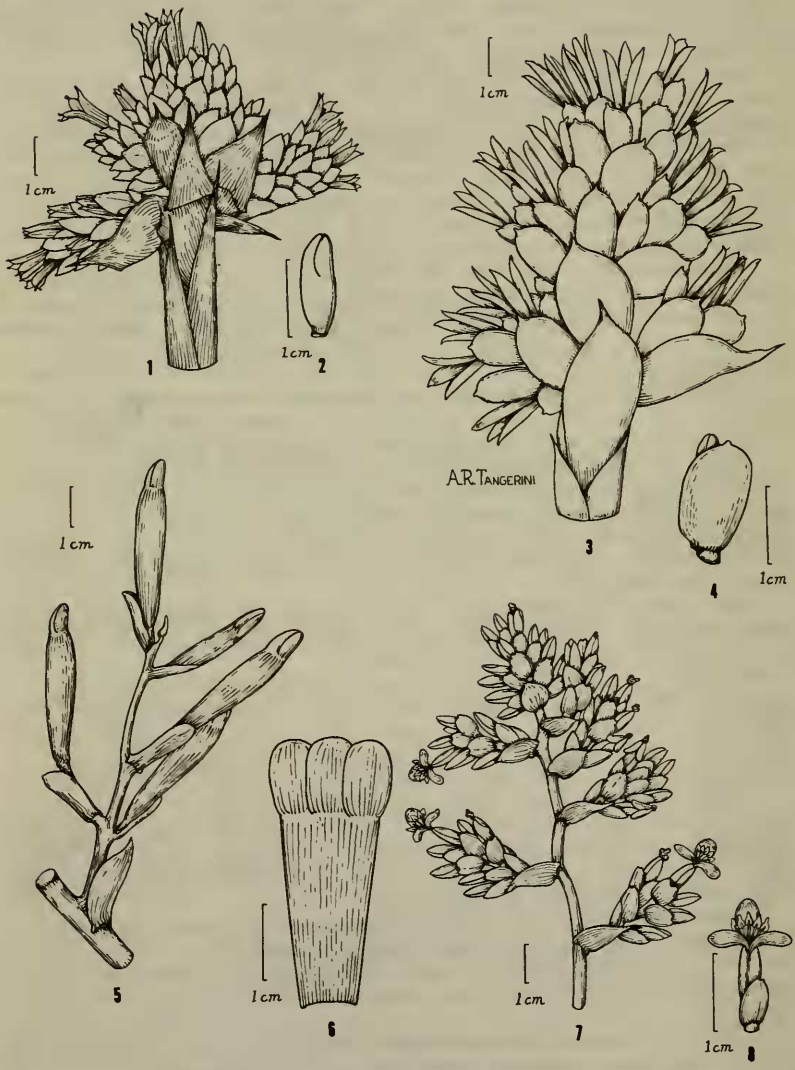

Fig. 1-2: Guzmania confusa; 3-4: G. cuatrecasasii; 5-6: G. dudleyi; 7-8: G. venamensis.

Plate II

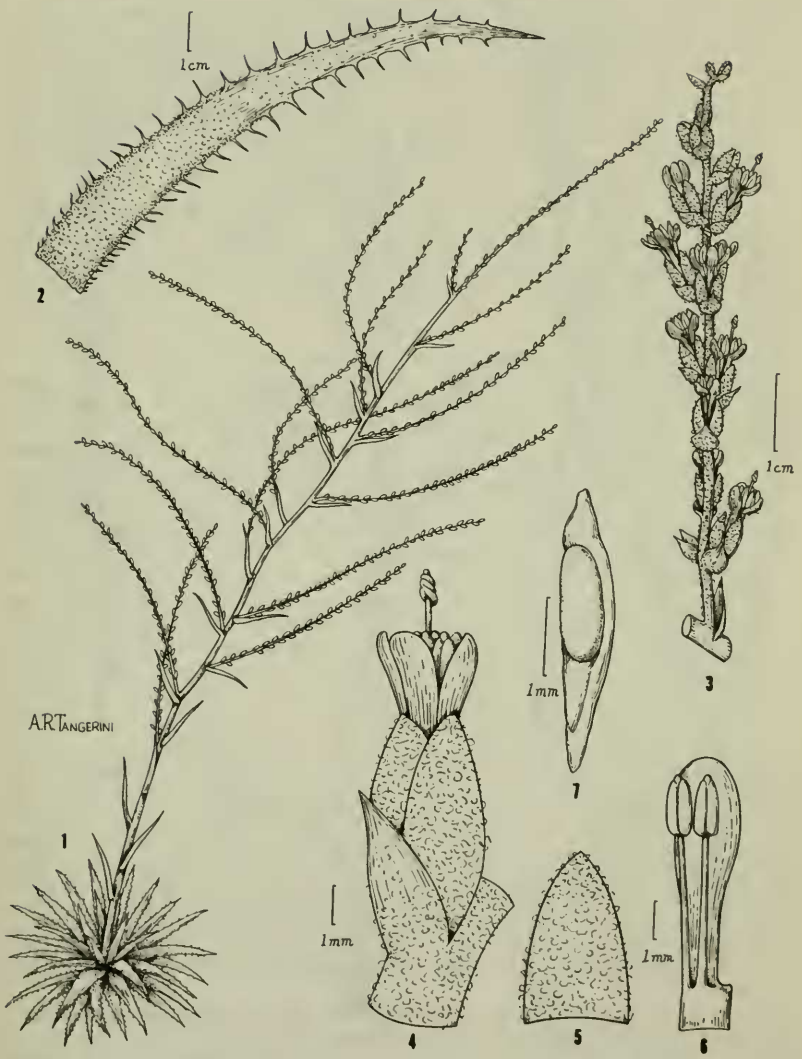

Fig. 1-7: Dyckia hebdingii.

Plate III

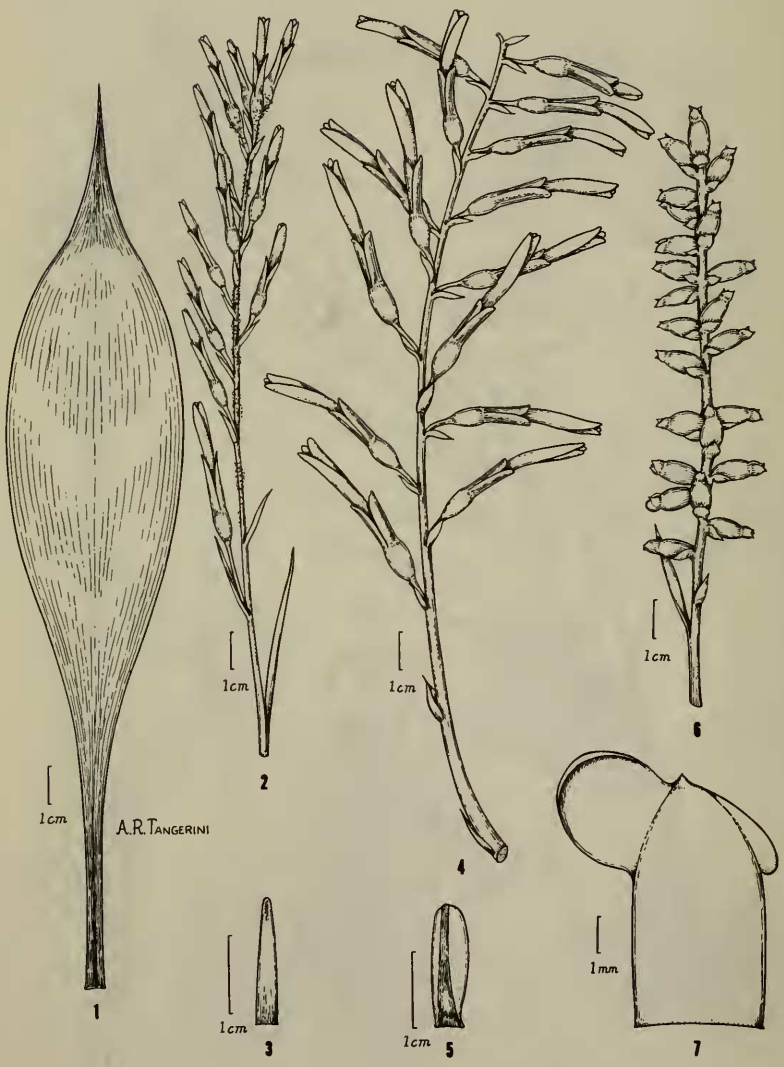

Fig. 1-3: Pitcairnia bifaria; 4-5: P. wolfei;

6-7: Ronnbergia explodens.